Amendments to the Claims:

1. (Currently amended) A method for arbitrary time and/or frequency scaling by analysis, classification and subsequent re-synthesis of phonocardiographic signals obtained from a transducer and subjected to digital spectral analysis, characterised in that the signals are converted on a running basis to a sinusoidal model representation, that a time and/or frequency axis scaling is defined and used to control the amplitudes and phases of the sinusoids, which are subsequently added to create a time and/or frequency scaled representation of the phonocardiographic signal and comprising the further steps of:

- obtaining the frequency content of the signal by applying a Short Time Fourier Transform with overlapping segments, a Discrete Fourier Transform being performed on each segment,

- performing a frequency peak search on each segment by consecutive removal of the spectral components having the highest energy content, identifying each peak by its frequency value

- repeating the peak search until a maximum number of peaks have been identified or until the energy content of the last peak is below a preset minimum,

- establishing a segment-by-segment map of spectral peaks, said peaks forming a track over time

- optionally subjecting the frequency values of the spectral peaks to a multiplication

- defining a synthesis frame [frame m] of time, based on said segments

- optionally subjecting each frame to a multiplication of the time scale

- adjusting the phase of sine generators centered on the frequencies of the tracks

- adjusting the amplitudes of said sine generators

- summing the outputs of all sine generators active at any one instant for a given frame length T.

2. (Canceled).

3. (Currently amended) A method for arbitrary time and/or frequency scaling by analysis, classification and subsequent re-synthesis of phonocardiographic signals obtained

from a transducer and subjected to digital spectral analysis, characterised in that the signals are converted on a running basis to a sinusoidal model representation, that a time and/or frequency axis scaling is defined and used to control the amplitudes and phases of the sinusoids, which are subsequently added to create a time and/or frequency scaled representation of the phonocardiographic signal and ~~according to claim 1, characterised in~~ including the following steps:

- obtaining the frequency content of the signal by applying a Short Time Fourier Transform with overlapping segments, a Discrete Fourier Transform being performed on each segment,

- performing a frequency peak search on each segment by repeated removal of the highest spectral "hills" identifying each peak by its frequency value

- repeating the peak search until a maximum number of peaks have been identified or until the peak level of the last peak is below a preset minimum,

- establishing a segment-by-segment map of spectral peaks, said peaks forming a track over time

- adjusting the phase of sine generators centered on the frequencies represented by the tracks

- summing the outputs of all sine generators active at any one instant for a given frame length T

- creating a continuous output signal by joining consecutive frames.

4. (Currently Amended) A method according to claim 1, [[2]] for scaling a phonocardiographic signal on the frequency axis by a desired factor, characterised in that the spectral peaks are multiplied by a factor q.

5. (Currently Amended) A method according to claim 1, [[2]] for scaling a phonocardiographic signal on the time axis by a desired factor, characterised in that the frame length is multiplied by a factor p.

6. (Currently Amended) A method according to claim 1, [[2]] for autoscaling a phonocardiographic signal on the time axis, characterised in that the scaling factor p is set such that the frame length [T] multiplying factor is equal to the heart rate divided by 60.

7. (Currently Amended) A method according to claim 1, [[2]] or 3, characterised in that the number of sine generators is equal to or below 50.

8. (Original) An apparatus for performing the method of any of the above claims on a phonocardiographic time function, characterised in that it comprises means for windowing the time function [$x(t)$], short time Fourier spectrum analysis means [1], means for searching and classifying spectral peaks [2, 3], means [4] for comparing phases of signals corresponding to said spectral peaks, means for controlling the phases of sine generators [6] providing signals corresponding to said spectral peaks, means [5, 7] for controlling the amplitudes of said sine generators [6], and means [8] for summing the signals of said controlled sine generators in order to obtain a synthesized and essentially noise free output signal [$y(t)$] representative of said time function.